Observations of Comet a 1894 (*Denning*). By William E. Plummer.

The following observations of Denning's Comet have all been made by the method of transits over a pair of wires, inclined at an angle of 45° to the meridian, the comet not being sufficiently bright to permit the use of a filar micrometer on the equatorial of the Liverpool Observatory. In the column "Observer" the letters P. and S. refer to Mr. Plummer and Mr. Skinner respectively.

Greenwich Mean Time of Observation.		☄ − * R A.	Apparent R.A. of ☄.	☄ − * Declination.	Apparent Declination of Comet.	No. of Transits.	Observer.	Log. Fact. of Parallax α	Log. Fact. of Parallax δ	Star of Comp.
	h m s	m s	h m s	′ ″	° ′ ″					
Mar. 27	10 2 49·8	−1 37·60	9 58 28·37	− 4 46·50	+31 40 4·9	10	P.	8·3539	0·5059	*a*
	10 14 20·7	−1 3·55	9 58 29·55	+ 3 48·8	+31 39 45·7	10	P.	8·6563	0·5077	*b*
	10 55 0·5	−1 0·48	9 58 32·62	+ 3 23·5	+31 39 20·4	5	S.	8·9258	0·5133	*b*
28	9 39 45·8	+1 54·22	10 2 6·10	− 7 47·0	+31 7 34·3	10	P.	8·2291*n*	0·5161	*c*
	9 39 45·8	− 23·08	10 2 6·40	+ 0 26·9	+31 7 24·3	10	P.	8·2291*n*	0·5161	*d*
	9 55 52·4	− 20·62	10 2 8 86	+ 14·5	+31 7 11·9	8	S.	8·0863	0·5162	*d*
29	9 7 49·9	− 6·72	10 5 36·29	...	...	9	P.	8·8648*n*	...	*e*
	9 4 3·6	...	...	− 4 44·0	+30 35 33·0	8	P.	...	0·5320	*e*
	9 24 14·4	− 3·09	10 5 39·02	− 5 14·1	+30 35 2·9	6	S.	8·6436*n*	0·5300	*e*
Mar. 30	9 15 14·3	−1 8·48	10 9 7·00	+12 10·0	+30 2 29·9	10	P.	8·7696*n*	0·5389	*f*
	9 23 19·5	−1 59·88	10 9 8·32	− 2 40·7	+30 2 16·5	10	P.	8·6479*n*	0·5376	*g*
	9 44 14·0	−1 4·30	10 9 11·18	+11 27·7	+30 1 47·6	6	S.	7·8491*n*	0·5355	*f*
Apr. 1	8 1 4·0	+ 48·48	10 15 40·96	− 4 6·8	+28 58 58·7	10	P.	9·2653*n*	0·5856	*h*
	8 1 4·0	+ 8·90	10 15 40·79	− 5 15·2	+28 59 0·2	10	P.	9·2653*n*	0·5856	*i*

March 27.—The comet ill defined and the observation not thought very exact.
March 28.—The comet seen much better; a definite point seen in the comet to which the observations refer.
March 29.—An observation of declination rejected from discordance.
March 30.—The observation difficult, owing to very brilliant aurora. The sky was not dark.

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Mean Places of Stars of Comparison.

Star's Designation or Authority.	Mean Red. 1894·0	Corr. to Apparent Equinox.	Mean Declination 1894·0.	Corr. to Apparent Equinox.	Letter of Reference.
	h m s	s	° ′ ″	″	
Leiden Zones, 41, No. 37	10 0 3·87	+2·10	+31 44 50·4	+1·0	*a*
" " 163, No. 126	9 59 31·01	+2·09	+31 35 55·9	+1·0	*b*
" " 163, No. 127	10 0 9·82	+2·06	+31 15 20·4	+0·9	*c*
" " 172, No. 25	10 2 27·40	+2·08	+31 6 56·6	+0·8	*d*
Washington Zones, No. 4328 Leiden Zones, 39, No. 60	10 5 40·93	+2·08	+30 40 16·5	+0·5	*e*
Greenwich 1864 Cat. No. 1243 Glasgow Cat. No. 2658	10 10 13·42	+2·06	+29 50 19·8	+0·1	*f*
Leiden Zones, 41, No. 46	10 11 6·13	+2·07	+30 4 57·1	+0·1	*g*
Bonn Zones, +29°, No. 2032	10 14 50·43	+2·05	+29 3 5·8	−0·3	*h*
Paris Catalogue, No. 12665	10 15 29·84	+2·05	+29 4 13·7	−0·3	*i*

Liverpool Observatory:
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Note on the Computation of the Brightness of the Planets, with some Ephemerides for Observations of the Brightness of Mercury. By A. Marth.

In the *Nautical Almanacs* for the years 1835 to 1857 the times of the greatest brilliancy of *Venus* are predicted to the minute. Wondering at this precision in the prediction of such an occurrence, I tried, by computing a number of instances, to find out what hypothesis could have been adopted in the computations. The predicted times were found to be within a couple of days of the times computed upon the ordinary assumption that the diminution of brightness due to the defect of illumination depends simply on the proportion of the unilluminated portion to the whole of the disc; but what modification of this assumption had been introduced, or how the apparent precision had been obtained, I failed to detect. When, in 1853, I got the opportunity of making inquiries at the *Nautical Almanac* office, I learnt that nothing was known there about any hypothesis, but that the predicted times were very easily computed to a minute, as they were merely the times when the distance of *Venus* from the Earth reached a certain value. As this value had obviously been deduced upon the ordinary assumption, but by neglecting the eccentricities of the orbits, I pointed out the illusory character of the predicted times, and recommended to give in future merely the day, but the right day. Since the distances of *Venus* from the Sun and from the Earth r and Δ and the distance of the Sun from the Earth were given in the *N. A.*, the light-ratio of *Venus* could be found from them, without actually computing the phase angle v or the angle at *Venus* between r and Δ. For, assuming that the Sun lights up just one-half of the surface of the planet, or disregarding the small zone of doubtful breadth beyond, the light-ratio would be

$$\frac{\cos^2 \tfrac{1}{2} v}{r^2 \Delta^2}, \text{ or } \frac{(r+\Delta)^2 - \mathrm{R}^2}{r^3 \Delta^3};$$

so that by computing this value, or, if preferred,

$$\frac{(r+\Delta+\mathrm{R})\,(r+\Delta-\mathrm{R})}{r^3 \Delta^3},$$

for some days near the time, the day during which this value reached a maximum would be the right one. This recommendation was adopted in the *N. A.* for 1858, and the computations have been made since in this manner; but from 1875 onwards the hour of the greatest brilliancy has again been inserted.

The logarithm of the light-ratio (0·4 of which represents